

PATENT COOPERATION TREATY

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From the INTERNATIONAL SEARCHING AUTHORITY

To:
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Boston, Massachusetts 02210-2604
UNITED STATES OF AMERICA

*JUNE 12, 2004 -
PAY ADD'L FEES*

INVITATION TO PAY ADDITIONAL FEES

(PCT Article 17(3)(a) and Rule 40.1)

Applicant's or agent's file reference 005363-3126 <i>3173 PELDPM</i>	Date of mailing (day/month/year) 28/04/2004
International application No. PCT/US 03/37775	PAYMENT DUE within 45 months from the above date of mailing
Applicant TUFTS UNIVERSITY	International filing date (day/month/year) 26/11/2003

1. This International Searching Authority

(i) considers that there are 6 (number of) inventions claimed in the international application covered by the claims indicated ~~below~~ on the extra sheet:

and it considers that the international application does not comply with the requirements of unity of invention (Rules 13.1, 13.2 and 13.3) for the reasons indicated ~~below~~ on the extra sheet:

(ii) has carried out a partial international search (see Annex) will establish the international search report on those parts of the international application which relate to the invention first mentioned in claims Nos.:

1 - 18

(iii) will establish the international search report on the other parts of the international application only if, and to the extent to which, additional fees are paid

2. The applicant is hereby invited, within the time limit indicated above, to pay the amount indicated below:

EUR 945,00 x 5 = EUR 4.725,00
Fee per additional invention number of additional inventions total amount of additional fees

Or, _____ x _____ = _____

The applicant is informed that, according to Rule 40.2(c), the payment of any additional fee may be made under protest, i.e., a reasoned statement to the effect that the international application complies with the requirement of unity of invention or that the amount of the required additional fee is excessive.

3. Claim(s) Nos. _____ have been found to be unsearchable under Article 17(2)(b) because of defects under Article 17(2)(a) and therefore have not been included with any invention.

Name and mailing address of the International Searching Authority European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Véronique Baillou
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EINSCHREIBEN

C.N.P.C.
02/05/04

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-18

Method for enzymatically synthesizing a functionalised polymer whereby the resultant functionalised polymer has inherent antioxidant capabilities.

2. Claims: 19-40

Method of protecting an oxygen sensitive material from degradation.

3. Claims: 41-53

Medical device having at least a surface coated with a polymer comprising monomeric units functionalized with an antioxidant.

4. Claims: 54-66

An antioxidant coupled packaging material

5. Claims: 67-114

A controlled delivery system (claim 67), a method of controlled delivery (claim 84) and an ointment for controlled delivery of antioxidants (claim 102).

6. Claims: 115-118

An ascorbyl coupled polymer

Among the six groups of inventions the only common feature is a polymer comprising antioxidant coupled monomers.

Such polymers are very well known in the art and described for example in "Polymer bound antioxidants" (see search report).

Therefore this feature does not constitute a contribution over the state of the art and therefore cannot be regarded as a special technical feature in the sense of Rule 13 PCT.

It is remarked that the polymerization method in claims 41 and 54 is not regarded as a distinguishing feature over the prior art because these claims are aimed to protect a product that *prima facie* is not rendered different by the production process. Thus among the third and fourth group of inventions no further common features could be identified.

Independent claims 67, 84 and 102 seem to be rendered unitary from the feature that the polymer is biodegradable and is therefore suitable for controlled delivery of the antioxidant.

The step of coupling an antioxidant to a monomer cannot be regarded as a distinguishing feature of the present application over the prior art. When a man skilled in the art describes the polymerization of a monomer

having an antioxidant functional group, he has already implicitly performed the step of coupling an antioxidant to a monomer. In fact such monomers are normally not present in nature but are obtained by chemically coupling an antioxidant moiety to a polymerizable monomer. Among the first second and fifth group of inventions a further common feature could be identified. A method comprising the step of enzymatically polymerizing antioxidant-coupled monomers to form a functionalised polymer. This feature is known in the art. In page 3797 of Enzymatic polymerization (see search report) is described the enzymatic polymerization of many monomers having coupled antioxidant moiety. Therefore also this feature does not constitute a contribution over the state of the art and therefore cannot be regarded as a special technical feature in the sense of Rule 13 PCT.

1. The present communication is an Annex to the invitation to pay additional fees (Form PCT/ISA/206). It shows the results of the international search established on the parts of the international application which relate to the invention first mentioned in claims Nos.:

1-18
 2. This communication is not the international search report which will be established according to Article 18 and Rule 43.
 3. If the applicant does not pay any additional search fees, the information appearing in this communication will be considered as the result of the international search and will be included as such in the international search report.
 4. If the applicant pays additional fees, the international search report will contain both the information appearing in this communication and the results of the international search on other parts of the international application for which such fees will have been paid.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	DATABASE CA [Online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; 23 March 2003 (2003-03-23) SINGH, AMARJIT ET AL: "Enzymatic approach to ascorbic acid-modified polymers for free radical scavenging" retrieved from STN Database accession no. 138:385828 XP002277047 abstract & POLYMERIC MATERIALS SCIENCE AND ENGINEERING (2003), 88, 308-309 ,	1-18
X	--- KOBAYASHI S ET AL: "ENZYMATIC POLYMERIZATION" , CHEMICAL REVIEWS, AMERICAN CHEMICAL SOCIETY. EASTON, US, VOL. 101, PAGE(S) 3793-3818 XP001121958 ISSN: 0009-2665 page 3797 ---	1-18
A	GILLICK; KUCZKOWSKI: "POLYMER-BOUND ANTIOXIDANT" RUBBER CHEMICAL TECHNOLOGY, vol. 57, no. 3, 1984, pages 621-651, XP009029436 the whole document --- -/-	1-18

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance
 "E" earlier document but published on or after the international filing date
 "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
 "O" document referring to an oral disclosure, use, exhibition or other means
 "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Annex Form PCT/ISA/206
COMMUNICATION RELATING TO THE RESULTS
OF THE PARTIAL INTERNATIONAL SEARCH

ational Application No
PCT/US 03/37775

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>DATABASE CA [Online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; 20 November 2002 (2002-11-20) SINGH, AMARJIT ET AL: "Enzyme-based vinyl polymerization" retrieved from STN Database accession no. 138:188089 XP002277176 abstract & JOURNAL OF POLYMERS AND THE ENVIRONMENT (2002), 10(3), 85-91 ,</p> <p>-----</p>	1-18